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ABSTRACT

Descriptive information and supporting documents for courses taught in the language center of a school of mines are presented here. The first is a four-semester engineering practices introductory course sequence that incorporates professional-level technical problem-solving, cooperative learning, and the preparation of written and oral presentations to real-world clients. It is designed to help students learn to define complex problems, continue self-education, think creatively and critically, work in teams, evaluate evidence, make judgments, and communicate to a variety of audiences. The second outline is of components of projects in English for Science and Technology (EST) and English for Special Purposes (ESP) courses at levels five and six. The projects consist of interviews with individuals who are professionals in a particular area, background research, and preparation of an oral presentation, to be videotaped, and a written report. A list of oral and written student research project topics and an evaluation form for oral presentations are also included. (MSE)

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Videotaping EST/ESP Student Projects: "Real World" Research Projects for Professional and Academic Preparation

Kay Gallowich

INTERLINK Language Center
Colorado School of Mines
Golden, Colorado

TESOL '94, Baltimore, Maryland
March 8-12, 1994

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TYPES OF COMMUNICATION RANKED BY IMPORTANCE TO ENGINEERING PRACTICE

Rank	Type of Communication
1	One-to-one talks with technically sophisticated personnel
2	Writing using graphs, charts, and/or other illustrative aids
3	Project proposals (written)
4	Participation in a small group or committee made up of only technically sophisticated members (oral)
5	Instructions for completing a technical process
6	One-to-one talks with nontechnical personnel
7	Project progress reports (written)
8	Project proposal presentations (oral)
9	Writing technical information for technical audiences
10	Oral presentations using graphs, charts, and/or other aids
11	Technical description of a piece of hardware (written)
12	Memoranda
13	Short reports (less than 10 pages typewritten, double-spaced)
14	Writing technical information for nontechnical audiences
15	Project feasibility studies (written)
16	Project progress report presentations (oral)
17	Participation in a small group or committee including nontechnical members (oral)
18	Business letters
19	Telephone reports
20	Project feasibility study presentations (oral)
21	Form completion
22	Formal speeches to technically sophisticated audiences
23	Writing in collaboration with one or more colleagues
24	Laboratory reports (written)
25†	Long reports (10 or more pages typewritten, double-spaced)
26	Formal speeches to nontechnical audiences
27	Writing requiring library research
28	Abstracts/summaries of others' writing (written)
29	Articles submitted to professional journals
30	Reports submitted to professional societies

Source: Huckin, Thomas and Olsen, Leslie. Technical Writing and Professional Communication for Nonnative Speakers of English, Second edition , New York: McGraw-Hill, Inc. 1991

RATIONAL: ACADEMIC PREPARATION

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RATIONAL AND DESCRIPTION:
EPICS (Engineering Practices Introductory Course Sequence)
Colorado School of Mines, Golden, Colorado

1. "Grouped into teams, EPICS students learn to work together in order to solve problems too complex for them to solve individually. They collaborate to define their project, gather appropriate information, choose a solution, and convey their recommendations to their client orally and in writing. In addition, they are required to carefully consider not only the technical components of their problem, but also the ethical, financial, social, and political components."

2. "The EPICS program is designed to help students become better prepared by helping them learn to
   - define complex problems
   - continue self-education
   - think creatively and critically
   - work in groups or teams
   - evaluate evidence
   - make judgments
   - communicate to a variety of audiences"

3. "In class, students and faculty interact more than in traditional courses because the instructors lecture very little, spending most of the time coaching students in practicing the skills they are learning."

4. "Recent EPICS clients have included
   - The Solar Energy Research Institute
   - The Regional Transportation District
   - Phillips Petroleum Company
   - Total Petroleum Company
   - The Environmental Protection Agency
   - The Colorado State Department of Local Affairs"

5. "Past projects have covered
   - treating mine effluent
   - planning land use for cities and towns
   - disposing of hazardous wastes
   - using alternate fuels
   - gathering and analyzing solar energy data
   - designing a new handicap access system for a public transportation system"

6. The four-semester EPICS program also emphasizes instruction in computing and graphics. Epics courses are taken during the student's first four semesters.

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COMPONENTS OF EST/ESP PROJECTS IN LEVELS FIVE AND SIX:

1. Students work in groups or teams

2. Students choose a topic relevant to their professional interests or academic majors

3. Preparation for the interviewing: Students and teacher contact various individuals, agencies, departments, companies, professors, etc. related to each team's topic

4. Teams conduct background research in order to formulate questions for their interviews

5. Teams interview their respective individuals or agencies and tape record the interviews. The tape recordings are transcribed and used as part of the research for the team's oral presentation and written technical report (see writing packet requirements below)

6. Students continue research and prepare graphs, charts, diagrams based on their interviews and research

7. Teacher assists each team in terms of grammar, pronunciation, self-correction, clarity of oral presentation and written technical report; videotaping for rehearsal of oral presentations

8. Each team completes a writing packet which must include:

   ° Outline of the project

   ° The written technical report to include the team's interview(s) and library research

   ° Overhead transparencies of charts, graphs, diagrams, maps used in the team's oral presentation

   ° A summary of the problems and frustrations the team encountered and what the team learned from the project

   ° An appendix in order to clarify, explain, and expand the team's project

   ° At least two-three rough drafts of the written technical report to be submitted to the instructor. Teams must confer with instructor on a regular basis regarding the research

9. Each team gives its oral presentation which includes:

   ° Videotaping of the oral presentations in front of a live audience; question and answer time

   ° Audience evaluation and Audience Evaluation Sheet

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EST/ESP ORAL AND WRITTEN RESEARCH PROJECTS: Examples of individuals, agencies, professors, and businesses interviewed by **INTERLINK** Level Five and six students:

- °Environmental Health and Safety Department, CSM
- °Radiation Protection Officer, former Research Institute, CSM
- °Jefferson County Environmental Protection Agency
- °Doctoral student and his dissertation in petroleum engineering, CSM
- °Environmental science, electronics, and chemistry professors, CSM
- °Coors water treatment engineer, Golden, CO
- °Administrative personnel at Bizmart, a local computer and office supplies chain, Lakewood, CO

TITLES OF EST/ESP ORAL AND WRITTEN STUDENT RESEARCH PROJECTS:

- °EPA/CSM engineers for the project: Pollution and the Effects of Metal Contamination in Clear Creek
- °Coors water treatment engineer and Coors PR personnel for the project: Water Treatment at Coors
- °CSM professors and doctoral student research and dissertation for the project: Natural Energy Sources for Producing Oil
- °Bizmart administrative personnél for the project: How Computers are Used in a Retail Business
- °Electronics professors for the project: Recent Advances in the Field of Electronics

VIDEOTAPING OF FORMER INTERLINK STUDENTS' ORAL PRESENTATIONS FOR EPICS COURSES AT COLORADO SCHOOL OF MINES

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Audience Evaluation Sheet
Level _____
Remain anonymous

Kay Gallowich
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Colorado School of Mines

Your observations and opinions are important to the students and teachers in this project, which has been **designed to prepare students for real-world university classes related to science, technology, business, and computers.** The students in this class have done a great deal of work in terms of listening, speaking, interviewing, writing, doing research, and meeting many deadlines in order to complete this project. Likewise, they have had a few frustrating experiences in terms of meeting academic standards and talking to people involved in business and technology. Yet, these students have been successful in many important ways in terms of academic preparation for college courses.

DIRECTIONS: The students will write their names on the board so you will know them. Write each of their names on the blank lines below and then circle the answer in terms of your own opinion and your own observations based on each question. Examples will be given in class.

NOTE: These student presentations would also be a good note-taking and summary exercise for you as future college students. After the presentation, please feel free to ask questions.

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1. In general, did the student speak loudly enough so you could hear him/her?

Student 1 (First name)_____
EXCELLENT GOOD AVERAGE UNSATISFACTORY

Student 2 (First name)_____
EXCELLENT GOOD AVERAGE UNSATISFACTORY

2. In general, how would you rate the student's pronunciation?

Student 1 (First name)_____
EXCELLENT GOOD AVERAGE UNSATISFACTORY

Student 2 (First name)_____
EXCELLENT GOOD AVERAGE UNSATISFACTORY

3. In general, how would you rate the student's grammar?

Student 1_____
EXCELLENT GOOD AVERAGE UNSATISFACTORY

Student 2_____
EXCELLENT GOOD AVERAGE UNSATISFACTORY

4. In general, rate the student's eye contact with the audience. In other words, did the student read too much from the notes, or did he/she look at the audience and use the notes only as reference?

Student 1_____
EXCELLENT GOOD AVERAGE UNSATISFACTORY

Student 2_____
EXCELLENT GOOD AVERAGE UNSATISFACTORY

5. In general, how well did the student explain new words, new ideas, or new theories?

Student 1_____
EXCELLENT GOOD AVERAGE UNSATISFACTORY

Student 2_____
EXCELLENT GOOD AVERAGE UNSATISFACTORY

6. In general, how well did you understand the student's explanations of the diagrams, charts, or graphs?

Student 1_____
EXCELLENT GOOD AVERAGE UNSATISFACTORY

Student 2_____
EXCELLENT GOOD AVERAGE UNSATISFACTORY

7. Was the student's pace appropriate? In other words, did the student speak too slowly, too quickly or just right?

Student 1_____
EXCELLENT GOOD AVERAGE UNSATISFACTORY

Student 2_____
EXCELLENT GOOD AVERAGE UNSATISFACTORY

8. Rate the student in terms of non-verbal gestures.

Student 1_____
EXCELLENT GOOD AVERAGE UNSATISFACTORY

Student 2_____
EXCELLENT GOOD AVERAGE UNSATISFACTORY

9. Rate the student in terms of how well he/she answered questions from the audience.

Student 1_____
EXCELLENT GOOD AVERAGE UNSATISFACTORY

Student 2_____
EXCELLENT GOOD AVERAGE UNSATISFACTORY

GROUP EVALUATION:
In terms of fluency, clarity, content, organization, and interest, how would you rate this group as a whole? In other words, if there is more than one person giving a presentation, how would you rate the group as a unit? If there is one person presenting, how would you rate this person's presentation?

EXCELLENT GOOD AVERAGE UNSATISFACTORY

2. What are some suggestions you could make to improve the presentation (if any)_____

_____

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